

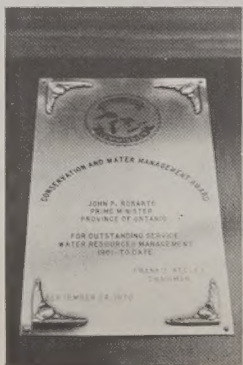
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JOHN VAN NESS, of Great Lakes Commission presents Premier John Roberts with citation for outstanding leadership in water management.

Resources Citation

Premier John P. Roberts has been presented with a citation "for outstanding service in water resources management, from 1961 to date" by the Great Lakes Commission. Occasion for the presentation was the first meeting, October 7, of the Ad Hoc Action Committee set up by each state and province bordering the Great Lakes system in the Great Lakes Basin. At the Great Lakes Environmental Conference, hosted by Ontario Sept. 8-9. The first meeting of the action committee was chaired by George Kerr, minister of energy and resources management, and was called to expedite measures to combat pollution.



A photo feature on the conference appears on page 3.



DELIBERATIONS COMMENCE at first meeting of action committee. George Kerr, minister of energy and resources management, chaired the meeting.

Marinas Instal Pump-out Facilities

Approximately 150 marinas had installed pump-out facilities by the end of the boating season, in compliance with a new regulation requiring commercial marinas to instal or arrange elsewhere for pump-out facilities. According to OWRC boat and marina inspection staff, an estimated 235 marinas will be required to comply with the regulation.

In line with an earlier OWRC regulation — imple-

mented in 1969 — requiring pleasure boats with heads to instal holding tanks, 3,057 boats in recreational areas across the province were inspected. (The number includes visiting extra-provincial vessels as well as Ontario pleasure-craft.) Where heads were installed in violation of the regulation, owners were instructed to make the necessary improvements. Eight charges were laid for infrac-

The boat and marina inspection program will continue during the 1971 boating season, when permits for macerator-chlorinator devices will expire.

Part of the winter activity of the inspection staff will involve surveillance of areas where ice fishing huts are heavily concentrated to recommend, where necessary, adequate methods for disposing of sewage and garbage from the fishing huts.

Government
Publications



Water management in Ontario

Watertalk

VOL. 3, NO. 5

SEPTEMBER/OCTOBER, 1970

Fills OWRC Vacancies

New Commissioners Appointed

The appointment of two additional members of the Ontario Water Resources Commission was announced recently by George Kerr, minister of energy and resources management, and D. J. Collins, OWRC chairman. They are F. S. Hollingsworth, of Sault Ste. Marie, and Dr. C. A. Martin, of Milton.

Mr. Hollingsworth is president of Soo Mill & Lumber Co. Ltd., as well as president of Downey Building Materials Ltd., Allont Limited, Toronto, and a director of Great Lakes Power Co. Ltd. Active in community affairs, he is a past-president of Soo Kiwanis and a past-president of Plummer Memorial Hospital.

Dr. Martin, a physician, is also a leading businessman in Milton area. He is one of the pioneers in the establishment of the Sixteen Mile Creek Conservation Authority, now known as the Halton Region Conservation Authority, and was instrumental in the formation of the Kelso Lake Conservation Area. He has a long history of community involvement, having been a leading member of the municipal government of Milton for many years, and served as mayor from 1936 to 1938. Dr. Martin is a past warden of

Halton County and is presently a member of the Board of Governors of Sheridan College, a vice-president of the Halton and Peel Trust Company, and a director of Canada Trust Company, Limited.

The appointment of the two Commissioners fills existing vacancies. In addition to Chairman Collins, the Commission also includes J. H. H. Root, M.P.P., vice-chairman, H. E. Brown and L. E. Venciarutti, both of Toronto, and D. A. Moodie, of Richmond.

The Commission, which was established in 1956, is respon-



COMMISSIONER HOLLINGSWORTH



COMMISSIONER MARTIN

sible for water management in Ontario. Through the years it has pioneered many pollution abatement and water supply programs, with the result that it has become one of the most efficient water management agencies in North America. The appointment of the two new Commissioners, who bring a keen interest in water management with excellent backgrounds of experience and knowledge, recognizes the important work of the Commission in giving leadership in water supply and waste management in Ontario.

THC Publication Spotlights Toronto Waterfront Problems

A brochure published recently by the Toronto Harbor Commission casts light on pollution problems along the city's waterfront and steps being taken by a variety of agencies to combat them.

The brochure points out that Metro's problems are compounded by its steady growth — "a sprawling conglomerate of over 2 million

people closely related to a large body of water and growing steadily every year."

Some of the more important steps being taken by the harbor commission to combat pollution are outlined in the brochure and include:

- Daily inspection of all ships and docks by various members of TCH's engineering department. The result-

ing reports are forwarded to the Ontario Water Resources Commission and other regulatory agencies.

- Pollution patrol via the harbor police and aircraft. Aircraft "pollution flights" out of the Toronto Island airport were initiated by THC in 1959.

- Weekly checks of 38

manholes, numerous seepage wells and various separators in the surrounding area.

The brochure also explains special problems associated with oil slicks. The harbor authority utilizes a 1500-foot boom to control slicks as well as apparatus to scoop or pump oil from the water surface into metal drums or tank trucks. Drills are car-

ried out under simulated emergency conditions to keep harbor personnel up-to-date and in a state of readiness.

Also detailed in the brochure are the contributions of natural phenomena—such as the annual assault by dead alewives, a smelt-like fish—and individuals to pollution along the waterfront.

Sophisticated System Of Grants And Loans Now In Effect

A broad system of grants and loans to financially stimulate the construction and installation of pollution control facilities is now in effect in Ontario.

In addition to grants under the new Pollution Abatement Incentive Act, the government has recently introduced a program

providing loans to eligible industries for anti-pollution equipment. The loans program, directed by the new Ontario Development Corporation, is specifically designed for small existing industries that can prove to ODC that they cannot finance installation of the facilities from their own re-

sources. Maximum permissible loan under this program will be \$250,000 and industries must prove themselves capable of repaying the loan within a 10-year period.

Late this year, George Kerr, minister of energy and resources management, announced two new pro-

grams to deal with municipal waste treatment and water supply problems. These arrangements provide for increased government financial assistance in the construction of OWRC water and sewage projects in small communities and for provincial area water and pollution control

schemes.

Basically, the plan designed for small municipalities provides for provincial financial assistance of up to 50% of the gross capital cost of the works, while the area scheme provides 15% provincial financial assistance for construction of the prime system.

INCO Outlines Waste Plans For Shebandowan Property

At a public hearing at Thunder Bay, Sept. 4, The International Nickel Company of Canada Limited outlined its plans for the treatment of waste from its Shebandowan property. The hearing was called by the Ontario Water Resources Commission to whom the company has made application for approval of its plans.

Two types of effluent from the complex are planned — mine waste water and sanitary waste. The mine water will be collected, chemically treated and clarified in an underground treatment system developed by International Nickel in its Sudbury area mines. The system is believed to be unique. The treated effluent will then be pumped one mile for release into Gold Creek.

Sanitary sewage will be treated in a stabilization lagoon based on OWRC design parameters. The effluent from this lagoon will be equivalent in quality to effluents from muni-

cipally-operated secondary treatment plants and will join the mine effluent.

The mill has been designed to be in complete closed-circuit with the tailing's area. The tailings from the mill will be sized, the coarse fraction being returned to the mine for use as a sandfill. The fine fraction will be pumped to a tailing's area where the solids will settle out. No effluent from the tailing's area will be released; instead it will be used as process water in the operations.

International Nickel announced plans to develop the Shebandowan ore body in 1968. The ore body is located at the southwest end of Lower Shebandowan Lake about 50 miles west of Thunder Bay. Temporary waste treatment facilities were approved by the OWRC. The mine will have a production capacity of 2,900 tons per day on the basis of a five-day week when it begins production in 1972.

International Symposium Will Study Effects Of Man-made Lakes

An international symposium on man-made lakes, their problems and environmental effects will be held at Knoxville, Tennessee, May 3-7, 1971. The conference, being organized by the Scientific Committee on Water Research (COWAR) on behalf of the International Council of Scientific Unions (ICSU), should be of interest to a broad range of scientists, engineers and project managers.

CONFERENCE AGENDA

The symposium will assess recent findings, summarize knowledge, and point to needed research on man-made lakes. Principal topics to be presented include man-made lakes of the world; case studies of major lakes; reservoirs as physical systems including hydrology, meteorology, geophysics, and limnology; reservoirs as biological systems including aquatic and terrestrial ecosystems; reservoirs in relation to man including archaeology; resettlement, agriculture and wild life, fisheries, health, transportation, and tourism; and management for multiple use.

PLENARY SESSIONS

All sessions will be plenary. Individual papers will

be summarized and discussed at the symposium and reproduced in full in the proceedings.

Persons interested in attending can get further de-

tails by writing to Dr. W. C. Ackerman, president, Scientific Committee on Water Research, Illinois State Water Survey, Box 232, Urbana, Illinois, 61801, USA.

Report Says \$33-37 Billion Required To Meet U.S. Treatment Needs

A survey of 1,008 cities, counties and districts throughout the United States has estimated the nation needs \$33-37 billion to meet water pollution control requirements in the fiscal years 1971-76.

The survey was made at the request of the senate subcommittee on air and water pollution control, considering President Richard Nixon's request to spend \$10-billion over a 4-year period, with \$4-billion representing the federal share.

PLAN CRITICIZED

Senator Edmund Muskie, heading up the subcommittee, has consistently criticized the administration plan, maintaining that it is grossly inadequate. Muskie is prime sponsor of a bill which would

allocate federal aid of \$2.5-billion a year for five years.

The report urged approval of a program which would provide federal aid of at least \$2.5-billion a year, maintaining that an even larger program could be justified by present U.S. needs.

The jurisdictions which provided figures for the report serve 89.4-million people. The combined needs of the jurisdictions for the next six years totalled \$19.9 billion, including \$8.7 billion for primary and secondary treatment, \$3.9-billion for tertiary treatment, and \$7.3-billion for interceptor and storm sewers. Allowing for the inflation factor, the report concluded the needs of another 50-60 million persons would increase the overall national price tag to between \$33-37 billion.



MINISTER OF ENERGY AND RESOURCES MANAGEMENT, George Kerr samples effluent from new wastewater treatment facilities at official opening.

Amerock Waste Facilities Officially Opened By Kerr

New wastewater treatment facilities installed by Amerock, Limited, of Meaford, were officially opened by George Kerr, minister of energy and resources management, late in September.

The company utilizes over a million gallons of water per day in the manufacture of hardware. Waste water, after serving various plant uses, is eventually returned to Georgian Bay.

Facilities installed by Amerock in its waste treatment program consist of equipment for the treatment of copper cyanide solution, the destruction of

toxic chemicals, and the removal of suspended solids. All of the facilities—which cost an estimated \$200,000—were approved by the Ontario Water Resources Commission. In carrying out the program, the company found it necessary to do considerable research and have special treatment equipment developed.

To underline the high quality of the effluent being produced, Mr. Kerr filled a flask with the waste water and drank from it. The company is planning to re-use much of the wastewater in its processes in the near future.



Left: Representatives of states and provinces bordering Great Lakes system converse in conference room at Ontario Science Centre during public session. Above: Premier Robarts answers news media queries regarding significant developments during conference.

Top Level Conference On Great Lakes

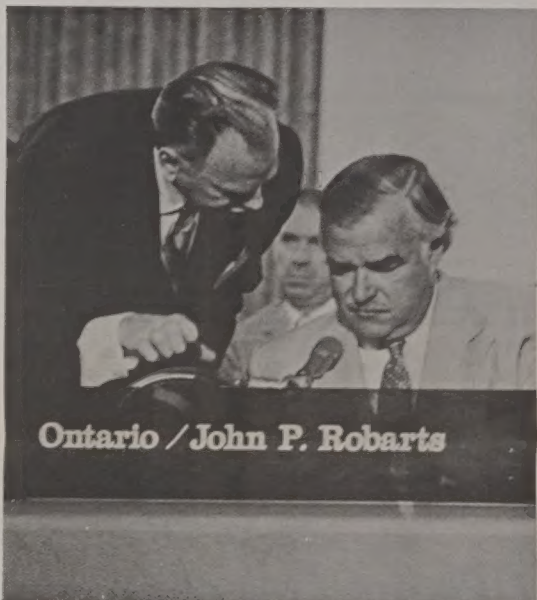
A significant step towards the initiation of a concerted and co-ordinated effort to solve pollution problems on the Great Lakes was taken in top level discussions between Ontario and other jurisdictions bordering the lakes at the Great Lakes Environmental Conference. The conference, hosted by Ontario and chaired by Premier John Robarts, was held at the Ontario Science Centre September 8-10.

Among the delegates who attended the conference to exchange viewpoints and agree on a course of action were William G. Milliken, governor of Michigan; Edgar D. Whitcomb, governor of Indiana, and James A. Rhodes, governor of Illinois.

In a common statement, issued at the end of the conference, the delegates stressed there must be "a new sense of urgency on the part of all jurisdictions involved to

solve the pollution crisis in the Great Lakes Basin" and recommended that the federal governments of Canada and the United States strengthen the powers of the International Joint Commission to permit more efficient dealing with the problems.

The delegates also agreed to establish immediately an "ad hoc action group" to co-ordinate anti-pollution functions on the Great Lakes until the IJC can be more effectively organized.



CAMERA CATCHES Premier Robarts and George Kerr, minister of energy and resources management, exchanging views in a busy moment during the conference (above). Below: In closed session delegates of the various jurisdictions present their individual views to provide basis for formulating concerted effort.



KEY SPEAKERS during both the closed and public sessions of the conference were Edgar D. Whitcomb, governor of Indiana (above) and William G. Milliken, governor of Michigan.



AUDIO VISUAL TECHNICIANS monitor conference for transmission on closed-circuit TV throughout science centre.



Watertalk

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Editor: L. A. Marshall

Director of Public Relations and Information: M. F. Cheetham

Time For Commitment...

A disconcerting aspect of the Great Lakes Environmental Conference, hosted recently by Ontario, was evidence that the United States as a whole still has not fully accepted the financial responsibilities of pollution control.

Time after time high level representatives from the states criticized the U.S. federal government for failing to implement an effective system for financing pollution combat.

MAJOR CONTRIBUTOR

There can be no doubt that the jurisdictions on the American side of the Great Lakes compose the major contributor of pollution. Thus, it is unfortunate that Ontario's modern and forward-looking programs may, in many instances, be negated by a lack of parallel measures on the other side.

True, the unanimity of the delegates in expressing intent to clean up pollution and the establishing of an Ad Hoc 'Action Group' were encouraging. But the remarks of the delegates suggested that the U.S. is far from being committed financially.

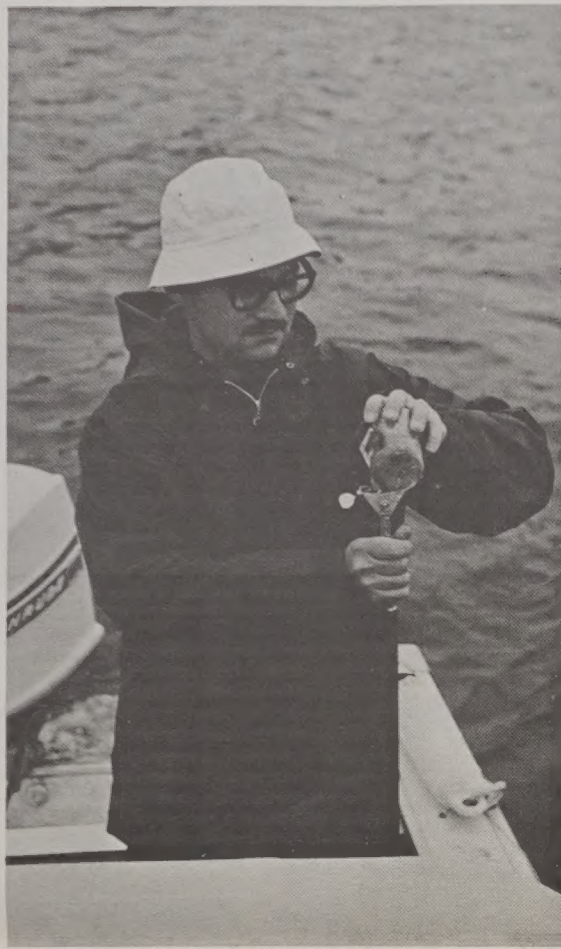
COMPLEX PROBLEMS

Meanwhile, the problems that now exist with respect to the Great Lakes are very complex and promise to grow more complex in the near future.

For the survival of the Great Lakes as a valuable natural resource it is imperative that the U.S. federal, state and municipal jurisdictions approach the pollution threat amicably and evolve the appropriate financial programs.

Let's hope the momentum for pollution abatement established by the Environmental Conference helps stimulate this much needed financial commitment.

Program To Evolve Long Range Plans For Recreational Waters



OWRC SURVEY TECHNOLOGIST, Larry Talbot, introduces dye into water, at site in recreational program, to determine direction and velocity of current.

In the past two years the classic serenity of the forests has been disturbed by reports that pollution is on the loose in the recreational hinterland. As a result, today's cottager appears to spend as much time worrying about pollution as he spends enjoying more traditional recreational activities like swimming and fishing. The woods have become full of uneasiness and suspicion — Does that green scum mean our lake is 'dying'? Is Mr. Jones' septic tank too close to the shoreline? Why is the water so murky in this area? The high tension of urban life seems to have infected the woodlands.

COMPLEX FACTORS

Many of the suspicions are, of course, unfounded. Because of the intensive publicity that pollution has received people are looking harder for evidence of pollution and often misinterpreting the significance of natural phenomena that previously went unnoticed. Then, too, some lakes in their natural state are, technically, polluted. Unfortunately, defining all of the factors that are adversely affecting water quality in a watercourse and eliminating them is not easy but requires a highly methodical and technical approach.

To aid in seeking out and eliminating sources of cottage pollution and to evolve concrete, long range plans to safeguard our recreational waters the Ontario Water Resources Commission, in co-operation with other governmental agen-

cies, has embarked on a program of intensive activity in the cottage areas.

SURVEY INVESTIGATIONS

To facilitate the detection and elimination of existing waste sources and develop an overall view of water supply in the various lakes, survey staff of OWRC, supported by a mobile laboratory unit, commenced a systematic investigation of recreational watercourses early last spring. The surveys, which carried through until late fall, centred on lakes in such intensive use areas as Burleigh Falls, Orillia, Parry Sound and Rose-dale.

Basically, the survey operations involve the carefully planned collection of samples by boat at strategic points in each watercourse being investigated. OWRC sanitary engineers aboard the vessel immediately submit each sample to chemical analysis and at the end of the survey 'run' return the samples to the mobile laboratory for bacteriological analysis. During a normal working day this summer, from 60-70 samples were collected and analyzed by a four-man crew.

PROVINCIAL PROGRAM

While OWRC has been investigating overall water quality conditions in the lakes, teams from the Ontario Department of Health have been examining and testing the efficiency of cottage waste disposal systems. The joint program was approved by the Ontario government last May, following

recommendations of an inter-departmental task force, appointed by the government's advisory committee on pollution control.

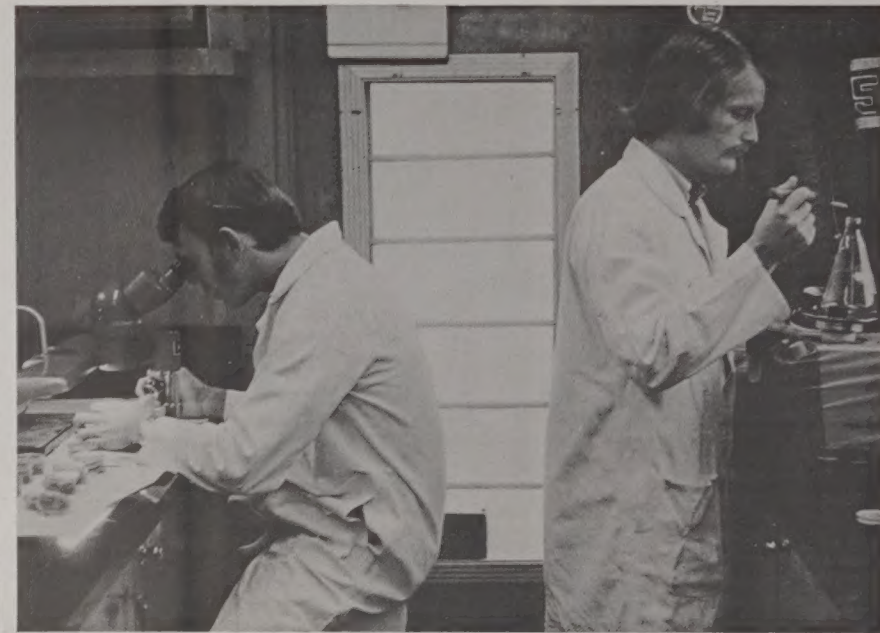
Although this year's investigations concentrated on selected areas of heavy use, plans are already underway to expand operations in the coming year.

NUTRIENT INVESTIGATIONS

OWRC has also been conducting investigations into nutrient enrichment, a problem that represents a greater long-term threat than bacterial pollution. Nutrients, such as nitrogen, phosphorus, and carbon are critically related to development of algal conditions. In a two-year program, initiated on the Muskokas in 1969, the Commission has been assessing



DISSOLVED OXYGEN READINGS are taken on equipment in survey vessel.



WATER SAMPLES ARE EXAMINED for bacteria content in the Commission's mobile laboratory. The laboratory travels with the survey crew to provide a 'headquarters' for the investigation as it moves throughout the province.

the various factors affecting nutrient enrichment and algal growth.

To determine what nutrients are most crucially affecting the growth of algae, experiments have been conducted under controlled conditions in the laboratory and on the lakes. Operations this year concentrated on defining the relative

importance of various sources of nutrients and necessitated extremely detailed investigations of nutrient inputs. Previous investigations by OWRC in some recreational lakes have found overwhelmingly circumstantial evidence that algal conditions were being aggravated by waste inputs from domestic sources.

Besides making it possible for OWRC to determine under what conditions septic tanks may or may not be utilized for domestic waste disposal, this program will permit the drawing up of guidelines for the development of essential controls in most of the waters of central and northern Ontario as well as the Muskokas.

Photo Collection Shows Gradual Change In Toronto Environment

Do you ever wonder what the Don River or the Toronto lakeshore looked like circa 1900, before the era of hi-rise and major development? Or how the Toronto islands looked in the era of

the grain schooners and paddle-wheelers?

ARCHIVE COLLECTION

Michael Filey, an engineer with the Ontario Water Resources Commission's divi-

sion of industrial wastes, did and his interest led him to evolve, over a five-year period, what is now being acknowledged as the most comprehensive photo collection of old Toronto.

Mr. Filey's photos, painstakingly collected from the archives of municipal governments and private companies, date from the mid-nineteenth century to the end of the second world war. Rural Toronto, Victorian Toronto, the Toronto of the model 'T' Ford and wooden streetcar—all are vividly captured in the 2500-photo collection. Mr. Filey reprints most of the photos from old plates and negatives in his own home dark-room.

SECOND BOOK

Interest in the collection has led the University of Toronto Press to publish a book—'A Toronto Album: Glimpses of the City That Was'—based on 120 photos from the collection. Accompanied by sensitive and witty captions written by Mr. Filey, the photos nostalgically capture the character of the city in its different stages of development. The book has a foreword by Toronto mayor William Dennison who is, himself, an amateur historian.

'A Toronto Album' is the

second book to be based on Mr. Filey's photos. An earlier book utilized pictures from the collection to illustrate changes over the years in a railway system. Mr. Filey's photos have also been the subject of a feature in Toronto Life magazine and have been the subject of a CBC television program.

Perhaps the most signifi-

cant aspect of Mr. Filey's latest book is the comment which it makes on the city as an environment—how it has been drastically changed over a short span of time, not always for the best. It is the photos of the waterfront and the Don and Humber Rivers, that show best how development and industrialization have taken their toll.



IDYLIC PHOTO from Mr. Filey's collection shows the Humber River at Bloor St. near the turn of the century.



INDUSTRIAL WASTES ENGINEER, Michael Filey, holds proofs from his new book 'A Toronto Album: Glimpses of The City That Was.'

Studies Seek To Determine Basic Problems Of Ecology...

A study group composed of 70 participants from numerous universities, laboratories, federal agencies and corporations throughout the United States has estimated that an effective world-wide system for monitoring critical parameters in the environment could be established for about \$25 million.

REPORT UNDERWAY

The group, financed by 11 federal agencies and five foundations has sought to ascertain what can be authoritatively said about environmental problems and what further study is required. A full report on the findings and recommendations is to be released.

Among the preliminary findings released by the group:

—More extensive research is needed into assessing the effect of oil on marine life. Through shipping, drilling and accident, as much as 1.5 million tons of oil are directly introduced into the oceans each year. Approximately 3-4.5 million tons finds its way into waterways as a result of land disposal methods.

—A great reduction in the amount of DDT used throughout the world should be effected—although the

chemical is expected to have no significant effect on the ability of phytoplankton to convert carbon dioxide into oxygen. A program for measuring the concentration and effects of DDT in the oceans should be initiated.

—The possibility of climatic changes in the near future due to the build-up of carbon dioxide is small. The combustion of fossil fuels, though, is gradually increasing the amount of carbon dioxide in the atmosphere and could, con-

ceivably, have effects in the next century. On the other hand, the content of oxygen in the atmosphere is remaining constant and would decrease only slightly even if all the fuels recoverable were burned.

—A large supersonic transport fleet might drastically increase stratospheric cloudiness, thus stimulating climatic changes.

The detailed report on the study is being published by the Michigan Institute of Technology Press.

...And Power Production In Underwater Plants

The feasibility of underwater power plants for the supply of more electricity with less thermal pollution will be studied under a \$98,799 research contract awarded by the U.S. federal water quality administration.

Secretary of the Interior Walter Hickel stressed the urgent need for planning the location of generating plants "so that the impact of waste heat discharge is beneficial rather than detrimental." He said that particular emphasis in the study

will be placed on assessing how waste heat and other wastes from an underwater plant might affect marine life.

"Our fish and wildlife service advises that... waste heat discharges can be beneficial if properly located. The concept is to make technology our servant, rather than our master."

The study is being conducted by General Dynamics of Groton, Connecticut.

Nature And Man

Expansion

Ethos

Versus

Natural
Resources

In Japan 45 persons to date have succumbed to Minnamata disease—mercury pollution from fish caught in waters which people have fished for centuries. In that country's heavily industrialized cities, prudent people wear oxygen face masks.

Europe is, presently, slightly better off. But problems are still immense and compounded by the fact that many states—each with its own attitude toward pollution control—literally share air and water resources.

In North America the air pollution index frequently sky-rockets in the industrial cities and the continent's immense water resources, including the Great Lakes system, are generally threatened or severely taxed.

In spite of this adverse trend in environmental developments, a pre-occupation with expansion is in evidence in most countries of the

world—especially, it seems, in those countries in which the ecology is being most severely attacked. Though Japan is already obviously overcrowded and over-industrialized, commercial segments of the population are presently reported to be lobbying for initiation of a government campaign to increase the birth rate to ensure a future labor pool large enough to meet the projected industrial requirements.

In the U.S. the trend is toward increased power production and the securing of alternate sources to fulfill resource demands, rather than implementing a wise, controlled use of existing resources. A prime motivator behind the expansion is the economic factor—a large number of people stand to gain financially by catering to the demands of the industrial-urban society. Too often ignored is the evidence that suc-

cumbing overly to the economic factor is, in a more significant sense, illogical—like stoking a fire until the house burns down.

Up to the present, countries have tended to equate the standard of living with GNP. But in a modern sense the standard of living must take into consideration more than the annual growth rate. It should also be determined by such factors as the amount of living space provided for families, freedom to move without the crush of crowds and, fresh air and water—the quality of the general environment which means so much to the physical and psychological well-being of man.

Meanwhile, in some parts of the world it is already becoming evident that man has reached a point where GNP is, to an increasing degree, adversely affecting his standard of living.



RETIRING DIRECTOR of OWRC's personnel branch, Arthur Uren, admires fishing rod presented by staff at farewell party. Chairman Donald Collins looks on.

11 Years With Commission

A. R. W. Uren Retires

A. R. W. Uren, director of OWRC's personnel branch retired recently after 11 years with the Commission.

Mr. Uren joined the Commission as head of personnel relations in 1959. From that time to the present he guided the gradual development of

the branch until it incorporated all of the functions of a sophisticated personnel office. Functions presently managed by the personnel branch include recruitment, pay research, labor relations, job evaluation, staff relations, staff training and development and

co-ordination of employee benefit programs.

A special luncheon was hosted for Mr. Uren by OWRC employees.

Mr. Uren is succeeded by J. C. Arber, formerly with the department of civil service.

Splash Made By Waterdrop Excites Intensive Study

Ever wondered what kind of drop of water makes the biggest splash?

No?

Strange though it may seem, this question has been the subject of intensive investigation in the United States.

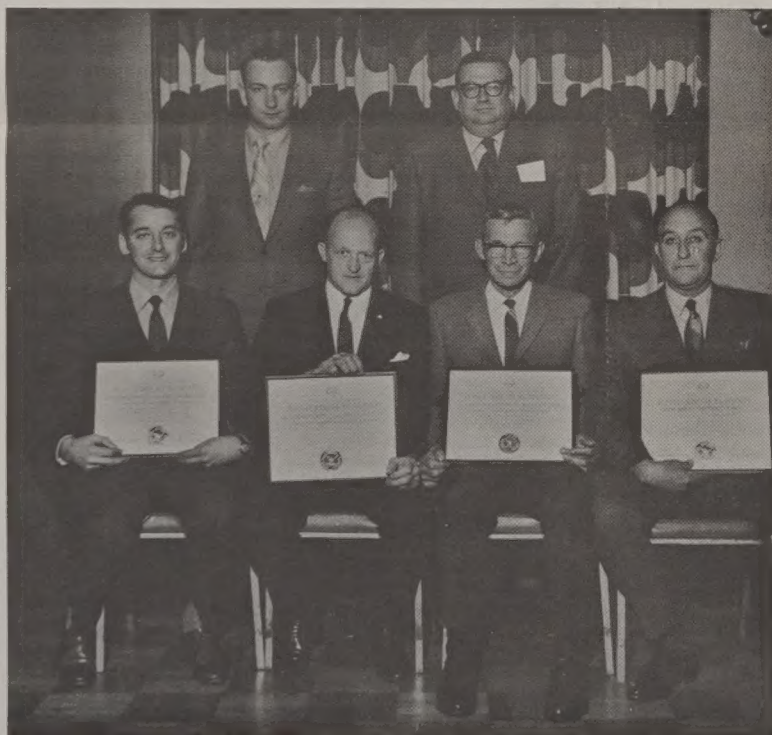
A report in a recent edition of *Science* magazine concerns itself with this question and considers such seemingly esoteric aspects of the waterdrop phenomenon as the development of splash parameters suitable to describe shape changes and splash droplet travel with time, and the relation of water drop depth and diameter to splash shape.

The report further specializes, confining itself primarily to examination of the splash created by waterdrops travelling at terminal velocity.

Special apparatus, including a high drop tower built especially to study the splash of raindrops was utilized in the experiments. The report noted that previous researchers in conventional laboratories were able to study only low velocity splashes, produced by a short fall.

Incidentally, droplet buffs will be interested to learn that, for increasing water depth, splash increases to a maximum at a depth of one-third drop diameter. It then decreases to a constant size for depths greater than three drop diameters.

The research, undertaken by scientists with the U.S. Agricultural research division, is part of a project being conducted to further the understanding of raindrop erosion of soil.



Plant operation awards were presented by Dave Caverly (standing r.), general manager, shown with director of plant operations, Doug McTavish. Holding awards are (l. to r.), Russ Romanick, Port Arthur water pollution control plant (WPCP), George Buckley, Sault Ste. Marie WPCP, Clarence Clarke, Orangeville WPCP, and Harold Sanger, Union water treatment plant. The awards are presented to plants in various categories.

Awards Presented For Best Plants

Chief operators and superintendents from OWRC's water treatment and water pollution control plants throughout the province gathered at the Commission laboratories late in September for this year's chief operators conference.

The conference is held annually to discuss plant operation and maintenance problems and to brief the plant personnel on new developments.

Among the topics included in this year's conference were discussions on nutrient removal, con-

trol of the environment, and a method, developed by the Commission, for treating iron in municipal water supplies.

A highlight of the conference was the presentation of awards for the best operated plants by OWRC general manager D. S. Caverly.

Researchers Analyze Effects Of Oil Spill On Marine Life

Results of a study of a 650-ton oil spill off Massachusetts last year indicate that contamination of seafood by oil may pose a serious risk to public health.

The research—termed the only detailed study ever conducted in the U.S. on the biological and environmental impact of a spill—was carried out by scientists at the Woods Hole Oceanographic Institute,

Mass.

The study pointed out that, even when marine organisms survive the initial impact of a spill, they ingest and retain hydrocarbons—some of which are transferred from smaller animals to larger ones via the food chain. It was not determined whether the hydrocarbon concentrations built up progressively through the food chain as do some

pesticides, notably DDT.

Other findings reported by the research team in their investigation of the spill:

—Since the most toxic components of oil dissolve in water, biological damage will occur at the very moment of the accident. Counter measures are fully effective only if all the oil is recovered immediately after the spill. The technique to achieve this

does not exist.

—In the Massachusetts incident pollution spread to the sea bottom covering at least 5,000 acres offshore as well as 500 acres of marshes and tidal rivers. Fish, crabs, shellfish, invertebrates and sea bed plants were killed in the area of the spill. The affected areas were not repopulated nine months after the accident.

—Harmful, long-term effects of an oil spill persist even after visible evidence has been removed. Some forms of commercial marine life, such as shellfish, apparently cannot cleanse themselves of oil contaminants.

The researchers indicated that an area of concern, from the public health viewpoint, is the presence of carcinogenic chemicals in oil.



Two Views Of A Lake

Above photo shows how the eternal beauty of the surf can be marred by litter discarded by thoughtless individuals. The bottom photo, which captures children in the act of feeding ducks,

amply illustrates the great pleasure that can be derived from a waterfront, even in an urban environment, if not mismanaged. Incidentally, throwing food into the water for the ducks is still a

legitimate pastime and contravenes no pollution control regulations—unless, of course, it is done to excess!



Scientists Say Mercury Consumption Has Increased 10-Fold In 35 Years

Two U.S. scientists have testified at an inquiry conducted by the senate subcommittee on energy, resources and the environment that the average person's mercury intake has increased at least 10-fold in some industrial countries since 1934.

The scientists, Dr. David Klein, chemistry professor at Hope College, Holland, Michigan, and Dr. Albert Fritsch, University of Texas chemist, said that in the U.S. today a person's mercury intake would be from 300 to 750 micrograms a week, depending on diet. The 1934 findings of a German scientist, they reported, indicated

that the average person's daily intake was then 25 micrograms a week, mostly from natural sources.

Klein pointed out that mercury has been widely used in industry and agriculture and has found its way into the atmosphere.

The scientists said that low-level symptoms of mercury poisoning include anxiety, excessive self-consciousness, difficulty in concentrating, fatigue, headache, irritability, and excessive perspiration. Severe poisoning can lead to kidney damage, damage to the nervous system, loosening of the teeth, senility, and, ultimately, death.

Perils Of Uncontrolled Technology Outlined By U Thant

In an Ottawa speech, recently, UN secretary-general U Thant warned that man must make great advances in his handling of problems created by modern technology "or perish." The speech was delivered to the 14th world congress of the Association of World Federalists.

"The unprecedented advance in science and technology," he said, "is boosting man's capacity for destruction . . . Henceforth there is no escape from the responsibility of planetary management." He said that the rapid expansion of the world population is increasing pollution

and exhausting non-renewable resources.

Centering in on the UN, Thant said it is impeded by "outmoded and unworkable concepts of unfettered national sovereignty." He suggested that a world body be set up with the necessary legal and legislative powers to deal effectively with global problems created by technology.

"The degradation of our environment is now so serious that, unless immediate remedial measures are taken, the very capacity of the planet to sustain human life will be in doubt."

Plans Formulated By Federal Government To Curb Pollution Of Coastal Waters

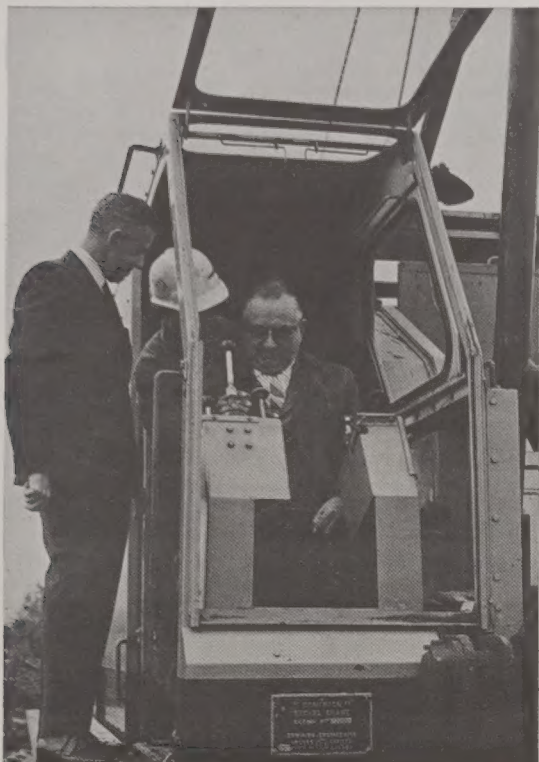
Plans for a maritime pollution claims fund, to be accumulated from a tax levied on all oil entering Canada, were announced recently by the federal government.

The fund is being established along with new regulations designed to curb pollution of Canadian waters and shipping zones. Vessels and cargo owners will be liable to fines up to \$100,000 if they break the regulations.

The tax will not exceed 15 cents a ton and the accumulated fund will be used to pay for damages in excess of shipping liabilities. Vessel liability will be calculated at the rate of \$500 per ton of the ship up to a maximum of \$50-million.

Officers will be appointed with power to seize vessels if they cannot prove financial responsibility with an insurance bond.

Ceremony Marks Construction Of Prescott Treatment Plant



MAYOR OF PRESCOTT, D. R. Irvine, looks on as OWRC chairman J. H. H. Root, MPP, tries out construction equipment at Prescott ceremony.

Construction on a new \$646,000 sewage treatment plant for Prescott, Ontario, officially got underway, following a brief public ceremony late in September.

J. H. H. Root, MPP, vice-chairman of the Ontario Water Resources Commission and D. H. Moodie, OWRC commissioner, officiated at the ceremony along with D. R. Irvine, mayor of Prescott and representatives of various levels of government.

The treatment plant, being constructed by M. Sullivan and Sons Ltd., of Arran, will have a capacity of one million imperial gallons per day, permitting eventual treatment of wastes from the townships of Edwardsburg and Augusta in addition to Prescott. It will tie in with a forcemain and trunk sewer system, presently nearing completion in Prescott, to form a complete sewage treatment package. Scheduled for completion in 1971, the plant will consist, basically, of a sewage pumping station and chlorination building, a grit chamber, a primary digester, two primary clarifiers and a control building.

Both projects are being financed under a provincial plan which will require payment for the service on a use-basis only. OWRC will own and

operate the plant on behalf of the municipality.

Construction of the plant climaxes negotiations carried on between OWRC and Prescott since 1966. Since sewage from Prescott is presently discharged untreated to the St.

Lawrence River, the new treatment plant will be a great step forward in the community's fight against pollution and in the improvement of the St. Lawrence river areas around Prescott as a water recreational centre.



D. H. MOODIE, OWRC commissioner (at podium) was among the civic and governmental officials who participated in the construction ceremony.

News Round-up

- The second industrial waste by-law enforcement course, held at the OWRC laboratories September 23-25 attracted 62 participants — some from as far away as Montreal and Lethbridge.

The course, which outlined the many facets of industrial pollution control in municipalities, was presented to municipal officials, consultants and industrialists.

Subjects covered during the course included sewer-use by-laws, surcharges, sampling, flow measurement, industrial waste characteristics, effects of industrial wastes on treatment of sewers, and public relations. The course was unanimously endorsed by those in attendance for continuation in future years. Anyone wishing information on next year's course should contact Mr. K. Shikaze of OWRC's division of industrial wastes.

- Survival day—a one-day seminar on pollution and environmental issues—was held at community colleges throughout the province on October 17.

Air pollution, water pollution, solid waste, pesticides, soil erosion, and population were among the topics discussed. Staff from OWRC took part in many of the meetings.

The project was sponsored by the community colleges and the Ontario Federation of Labor.

- *Challenges of the 70's* was the theme of the 31st annual conference of the Ontario branch of the Canadian institute of public health inspectors, held in Sudbury recently.

Environmental health was a strong item on the conference agenda. One of the highlights in the 3-day program was a task force report on Ontario's program for the protection of its recreational waters.

Mounting Environmental Concern In U.S.S.R.

If newspaper articles are any indication, it appears there is mounting concern over pollution in the Soviet Union as well as the west. An increasing number of articles in the Soviet press is devoted to pollution topics.

As is usually the case, the anti - pollution movement has been avidly taken up by the youth.

Recently the youth newspaper *Komsomolskaya Pravda* warned that the Ural

River—one of the Soviet Union's greatest rivers—is being destroyed by industrial wastes.

According to the article, legislation safeguarding the environment is given such low priority that a large smelting plant at Orsk was recently put into production despite the fact that inspectors reported its wastes contained phenols from 150 to 300 times in excess of legal limits. For the infractions the company

was fined 10 rubles (\$11.) by the government authorities. Industries breaking environmental regulations "are still dealt with too leniently" the article commented.

The newspaper also indicated that construction on treatment works for municipalities is lagging—partly because of the lack of specialists and partly because such jobs are not profitable enough.

Nuisance Algae Blooms

Bay Of Quinte Nutrient Factors Evaluated In Report

A report evaluating the factors contributing to nutrient enrichment in the Bay of Quinte has been prepared by the biology branch of the Ontario Water Resources Commission.

The Bay of Quinte, located along the north-eastern shore of Lake Ontario, ranks among the most beautiful features of the Great Lakes. In recent times it has exhibited symptoms of excessive enrichment due to human activities. The symptoms consist of nuisance blooms of algae, increased

turbidity, depletion of deep-water oxygen and changes in the composition of communities of algae, invertebrates and fishes.

Utilizing a new approach to define the significance of nutrient inputs from land drainage and municipal-industrial sources, the report affirms that waste discharges from municipalities and industries in the area are a critical factor in deteriorating water quality conditions in the bay. Presently, no special measures have been taken for nutrient

removal by any of the municipalities contributing discharges to the bay.

The report notes that the treatment of wastewater for the removal of phosphorus should contribute towards improved conditions since there is a high turnover rate of water in the bay.

A new program to curb discharge of nutrients to Ontario watercourses — beginning with the Great-Lakes — was recently announced by OWRC.